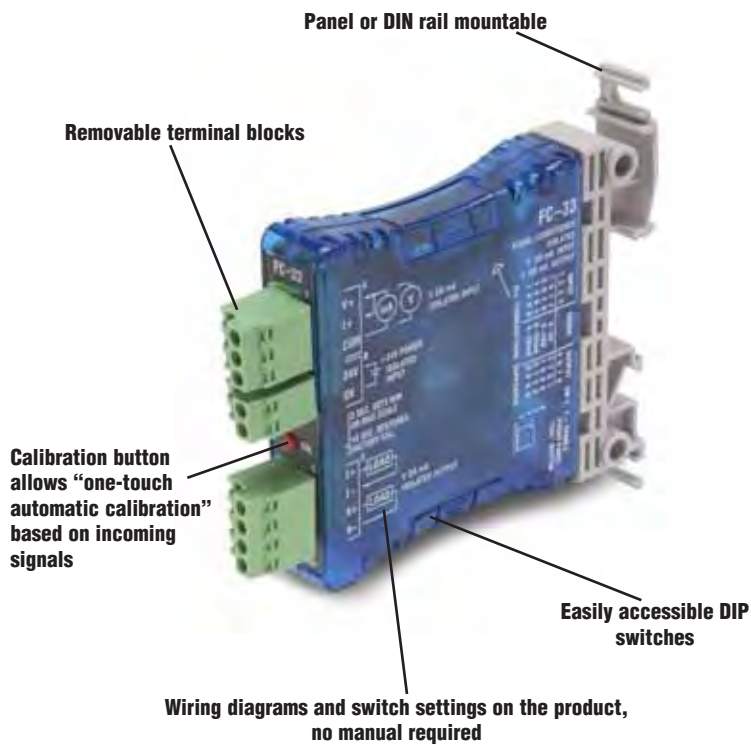


FC Series Signal Conditioners



Convert, isolate and transmit your process signals

Not all electrical signals are created equal. That's why the FC series signal conditioners are the perfect solution for converting process, temperature and other electrical signals into voltage or current signals for transmission or input to a PLC.

The FC series signal conditioners offer 1500V isolation between the input and output to help eliminate electrical noise. Features include easily accessible potentiometer adjustment of the output span and offset, (with the exception of FC-33), slim DIN-rail or side-mount cases and removable terminal blocks.

The FC series signal conditioners are ideal for use with PLCs, loop controllers, digital displays and any other applications requiring an isolated or analog signal.

- PLC Overview
- DL05/06 PLC
- DL105 PLC
- DL205 PLC
- DL305 PLC
- DL405 PLC
- Field I/O
- Software
- C-more HMIs
- Other HMI
- AC Drives
- Motors
- Steppers/Servos
- Motor Controls
- Proximity Sensors
- Photo Sensors
- Limit Switches
- Encoders
- Current Sensors
- Pushbuttons/Lights
- Process
- Relays/Timers
- Comm.
- TB's & Wiring
- Power
- Circuit Protection
- Enclosures
- Appendix
- Part Index



FC-33

DC Selectable Signal Conditioner with 3-way isolation

Field configurable input and output ranges of 0-5V, 0-10V, 0-20 mA and 4-20 mA with 1500 VDC isolation between input and output, and 1500 VDC isolation from 24 volt power and input/output. LED indicates normal operation and is used in conjunction with the calibration pushbutton for the internal calibration process.

- 3-way 1500V isolation
- Push button calibration



FC-T1

Thermocouple/mV Isolated Signal Conditioner

Field configurable input for several different types of thermocouple or mV inputs with 1500 VDC isolation between input and output. Cold junction compensation and burnout detection. Alarm/run LED.

- 1500V isolation
- Cold junction compensation (CJC)
- Internal diagnostics (burnout detection or calibration errors)



FC-11

4-20 mA Isolated Signal Conditioner

Loop powered 4-20 mA input/output signal with 1500 VDC isolation between input and output.

- 1500V isolation
- Loop powered



FC-R1

RTD Input Signal Conditioner

Loop powered, non-isolated, 3-wire unit converts an RTD input to a linear 4-20 mA signal. User selectable CU10, PT100 or PT1000 input.



FC-33 DC Selectable Signal Conditioner



Overview

The FC-33 is a DIN-rail or side-mount, selectable input/output signal conditioner with 1500 VDC isolation between input and output, and 1500 VDC isolation between 24-volt power and input/output. The field configurable input/output types allow a wide ranging capability for 0-5V, 0-10V, 0-20 mA and 4-20 mA signals.

The FC-33 has built-in self-calibration, but also has OFFSET (zero) and SPAN (full scale) adjustments of the output signal. The OFFSET has an adjustment range of 0 to 25% of full scale input and the SPAN has an adjustment of 80% to 102%.

Level LED: The LED is a powerful tool when setting up the signal conditioner. During normal operation the LED will blink at a proportional rate to the selected input signal level. When performing field calibration the LED is used for indication of the internal calibration process.

CAL-Pushbutton: This pushbutton, along with various switch settings, allows you to calibrate the OFFSET and/or SPAN for your application or to restore factory default calibration.

Application

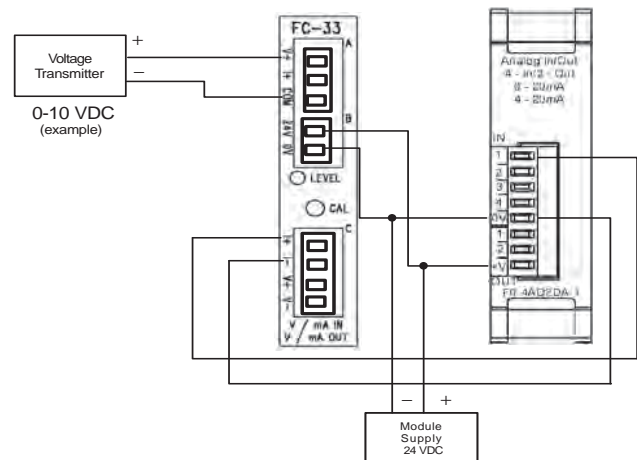
The FC-33, field configurable isolated input/output signal conditioner, is useful in eliminating ground loops and interfacing sensors to PLC analog input modules. The FC-33 has 3-way isolation; this feature solves many types of configuration problems. For example, the signal conditioner can be configured for a sinking input and a sourcing output. It also allows signal translation from current input to voltage output or voltage input to current output.

This feature would be useful in a system design with a limited type and number of channels – for example: eight channels of 0-10 VDC, seven of which are used, and one 4-20 mA input transmitter.

See page 23–23 for signal conditioner dimensions.

Specifications	
Input Ranges	0-5 V, 0-10 V, 0-20 mA, 4-20 mA
Input Impedance	250 Ω, ±0.1% current input 200 KΩ / 400 KΩ Voltage input
Output Ranges	0-5 V, 0-10 V, 0-20 mA, 4-20 mA
Load Impedance	2 KΩ minimum, voltage output 0 Ω minimum, current output
Maximum Load / Current	550 Ω @ 24 VDC (sink/source)
Sample Duration Time	10 ms
Filter Characteristic	-3 dB @ 3 Hz, -6 dB/octave
Linearity Error	0.05% FSO maximum
Stability	0.05% FSO maximum
Accuracy vs. Temperature	0.005%/ °C, (50ppm/°C)
Input Power	24 VDC, ±10% @ 50 mA
Recommended Fuse	0.032 mA, Series 217, current inputs
Isolation	1500 VDC input - output* 1500 VDC power - input* 1500 VDC power - output* *applied for 1 second
Maximum Inaccuracy of Output	0.05% @ 25°C, FSO maximum 0.25% @ 0-60°C, FSO maximum
Output Current	21 mA maximum (for mA output)
Approx. Field Cal. Range	0 - 25% (0 - 1.5 V / 5 V mode) 80% - 102% (4 - 5.1 V / 5 V mode)
Operating Temperature	0-60°C (32 to 140°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)
Relative Humidity	5 to 90% (non-condensing)
Vibration	ML STD 810C 514.2
Shock	ML STD 810C 516.2
Noise Immunity	NEMA ICS3-304

Typical User Wiring



Voltage Input and Current Output (example)